

DUAL-CHANNEL VIDEO ENCODING/DECODING SYSTEM

TECHNICAL SPECIFICATIONS

FEATURES

- Real-time, full-motion video over any digital datalink
- Dual-channel video in a single transport stream
- H.264 video compression for high-quality, full-motion video even at low bit rates (Optional MPEG-2/4)
- Multiple output interfaces (TTL, RS-422, UDP/IP)
- Video/Audio/PCM Data Multiplexing
- MISB/STANAG Compliant
- Metadata Support (optional KLV Encoding)
- Reed-Solomon FEC
- <200ms Latency
- Fully configurable network interface
- Video Data Rates from 64Kbps to 5Mbps
- Stereo/dual-channel audio inputs
- MPEG-1 Layer I/II Audio Compression
- RS-232 or Ethernet port configurable
- Compact, lightweight Encoder
- -40°C to +85°C Operation
- Rack-mount Decoder, 1RU



Delta 's Dual-channel Video Encoding/Decoding System is designed primarily for those applications requiring video/audio/PCM data multiplexing. The unit is ideal for flight test applications with multiple cameras and high bit rate telemetry. The Delta Models 6012R and 6112 provide the capability to convert two channels of composite video, audio, and PCM data into a single transport stream for transmission. The transport stream can then be processed at the receive site to convert the signals to their analog/digital formats or transmitted via UDP/IP over existing networks for dissemination or recording on PCs and workstations.

These units are built around an advanced, high-speed DSP media processor, working with fully optimized codecs. The system uses the latest, standards-based video compression technology to provide high-quality video at large compression ratios. H.264 compression combined with MPEG audio compression and a dedicated high-speed data channel, multiplexed in accordance with the MPEG-2 transport layer with forward error correction, make this system a powerful telemetry tool. Delta 's technology has been integrated, tested, and flown in numerous applications and with various airborne platforms.

The video encoder/decoder system is easily configured to provide optimal video performance at any given bit rate. User-configurable parameters permit the user to adjust the video/audio/data features in accordance with mission requirements. This is accomplished via serial or Ethernet ports, or the decoder 's front panel keypad/ display.

MODEL 6012R / MODEL 6112

DUAL-CHANNEL VIDEO ENCODING/DECODING SYSTEM

VIDEO I/O

| | | | |
|---------------------|-----------|---------------------|-----------|
| Encoder | | Decoder | |
| Ports | Two | Ports | Two |
| Input/Output | Composite | Input/Output | Composite |
| Format | NTSC/PAL | | |
| Impedance | 75 Ohms | Impedance | 75 Ohms |
| Connector | TNC | Connector | BNC |

AUDIO I/O

| | |
|------------------|---------------------------|
| Ports | Two |
| Channels | None, Left, Right, Stereo |
| Format | Balanced (Line Level) |
| Levels | 2.8Vp-p (1Vrms) |
| Impedance | 10K Ohms |
| Connector | Circular Mil/LEMO |

PCM DATA I/O

| | |
|------------------|----------------------------|
| Protocol | Synchronous PCM |
| Format | TTL, RS-422 |
| Data Rate | Up to 5Mbps |
| Connector | Enc: Circular Mil/Dec: BNC |

CONTROL

| | |
|-----------------|-------------------------------|
| Encoder | |
| Ports | Two |
| Format | RS-232/TCP/IP |
| Protocol | Delta's 3-character mnemonics |
| Decoder | |
| Ports | Three |
| Format | RS-232, TCP/IP, Front Panel |
| Protocol | Delta's 3-character mnemonics |

POWER

| | | | |
|------------------|--------------|------------------|-----------|
| Encoder | | Decoder | |
| Input | 18-36VDC | Input | 96-240VAC |
| Watts | 7W | Watts | 12W |
| Connector | Circular Mil | Connector | IEC-320 |

TRANSPORT STREAM I/O

| | |
|------------------|------------------------------------|
| Ports | Three |
| Format | TTL, RS-422, 10/100 Ethernet IP |
| Connector | Enc: Circ Mil/Dec: BNC/Triax/RJ-45 |

VIDEO COMPRESSION

| | |
|----------------------|-----------------------------|
| Algorithm | H.264 /MPEG-4 AVC (Part 10) |
| Format | H.264 Baseline/Main Profile |
| Resolutions | D1/2CIF/CIF |
| GOP Structure | Inter/Intra; I/IP |

AUDIO COMPRESSION

| | |
|---------------------|-----------------------------|
| Algorithm | MPEG-1 Layer I/II |
| Sample Rates | 8K/16Ksps |
| Sync | Lip synchronized with video |

TRANSPORT STREAM

| | |
|------------------|--|
| Protocol | ISO/IEC 13818-1 MPEG-2 Transport Stream Video/Audio/Data |
| Data Rate | 64Kbps to 10Mbps |

LATENCY

| | |
|------------------------|--------|
| Encoder/Decoder | <200ms |
|------------------------|--------|

FORWARD ERROR CORRECTION

| | |
|------------------|--|
| Algorithm | Reed-Solomon |
| Format | 16 Parity Bytes per 204 Byte Packet IAW DVB-ASI |

ENVIRONMENTAL (Encoder)

| | |
|--------------------------|--|
| Temp/Alt (Op) | DO-160D, Section 4, Category D2 -40°C to +85°C |
| Temp/Alt (Non-Op) | DO-160D, Section 4, Category D2 -55°C to +85°C |
| Humidity | DO-160D, Section 6, Category B 5%-95% RH, non-condensing |
| Vibration | DO-160D, Section 8, Category S, Figure 8-3, Profile M |
| Shock | DO-160D, Section 7, Category A, Figure 7-2, Operational (6g, 11ms, sawtooth) |

SIZE / WEIGHT

| | |
|----------------|---------------------------------|
| Encoder | 2" x 5" x 1" / 2lbs. |
| Decoder | 19" x 12" x 1.75" (1RU) / 7lbs. |



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